

# The Correlation between Unemployment and Suicide Rates in Gifu Prefecture, Japan

The Editor,

Sir,

The number of suicides in Japan has increased from approximately 22 000 per year in 1988–1997 to over 30 000 per year since 1998. This number has also been increasing in Gifu Prefecture. Japan's bubble economy collapsed in about 1990 and the unemployment rates have increased rapidly since 1998 (1). Many researchers (1, 2) consider increasing unemployment in males to be a major contributor to the number of suicides. However, thus far, this has not been proven in the Gifu Prefecture.

In this report, we researched the suicide rate and all the suicide cases in Gifu Prefecture in 1989–2000, in cooperation with the Ministry of Health, Labour and Welfare. Further, we researched the unemployment rates throughout Japan in 1989–2000, in cooperation with the Department of Work. The annual unemployment rate of the entire Japanese population and the unemployment rate for each prefecture are available every five years. The annual unemployment rate is unavailable in each prefecture. Therefore, we calculated the correlation between the unemployment rate every five years in the total Japanese population and that in Gifu Prefecture, for each gender. The correlations for males and females were  $r = 0.96$  and  $r = 0.94$ , respectively. Accordingly, we considered that the unemployment rate in the total population reflected the unemployment rate in Gifu Prefecture.

We focussed on the correlation of annual suicide rates in Gifu Prefecture in 1989–2000 with the unemployment rate in Japan in 1989–2000. Statistical analysis was performed using regression analysis.

During the test period, 2867 males and 1826 females committed suicide. The suicide rates for males and females were 23.7 and 14.2, respectively, per 100 000 population.

The annual suicide rates for males correlated significantly with the unemployment rates:  $r(12) = 0.91$ ,  $F_{(1, 10)} = 50.59$ , and  $p < 0.001$  ( $Y = 4.81X + 8.49$ ). However, the rates for females did not correlate with the unemployment rates:  $r(12) = 0.22$  and  $p = 0.48$  ( $Y = 0.43X + 12.89$ ).  $X =$  Unemployment rates (X range)  $Y =$  Suicide rates (Y range).

The unemployment rate is particularly relevant to the increase in suicide in males. When economic conditions including unemployment rates worsen, people experience greater stress at their workplace (3). Thus, we conclude that psychosocial healthcare should be considered as part of occupational affairs by industrial physicians, primary care physicians and psychiatrists, in order to prevent suicide, which is now an increasing national trend.

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